```
 1 import cv2
 2 from cvzone.HandTrackingModule import HandDetector
 3 import numpy as np
 4 import math
 5 import time
 6
 7 cap = cv2.VideoCapture(0)
 8 detector = HandDetector(maxHands=1)
 9
10 offset = 20
11 imgSize = 300
12
13 folder = "Data/Z"
14 counter = 0
15
16 while True:
17     success, img = cap.read()
18     hands, img = detector.findHands(img)
19     if hands:
20         hand = hands[0]
21         x, y, w, h = hand['bbox']
22
23         imgWhite = np.ones((imgSize, imgSize, 3), np.
   uint8)*255
24         imgCrop = img[y - offset : y + h + offset , x
    - offset : x + w + offset]
25
26         imgCropShape = imgCrop.shape
27
28         aspectRatio = h/w
29
30         if aspectRatio > 1:
31             k = imgSize / h
32             wCal = math.ceil(k * w)
33             imgResize = cv2.resize(imgCrop,(wCal,
   imgSize))
34             imgResizeShape = imgResize.shape
35             wGap = math.ceil((imgSize-wCal)/2)
36             imgWhite[:, wGap:wCal + wGap] = imgResize
37
38         else:
```

```
39              k = imgSize / w
40              hCal = math.ceil(k * h)
41              imgResize = cv2.resize(imgCrop, (imgSize
   , hCal))
42              imgResizeShape = imgResize.shape
43              hGap = math.ceil((imgSize - hCal) / 2)
44              imgWhite[hGap:hCal + hGap, :] = imgResize
45
46          cv2.imshow("ImageCrop", imgCrop)
47          cv2.imshow("ImageWhite", imgWhite)
48
49      cv2.imshow("Image", img)
50      key = cv2.waitKey(1)
51      if key ==ord("s"):
52          counter += 1
53          cv2.imwrite(f'{folder}/Image_{time.time()}.
   jpg',imgWhite)
54          print(counter)
```